

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A semiconductor storage device comprising:

a semiconductor substrate;

a gate insulating film formed on the semiconductor substrate;

a single gate electrode, said single gate electrode formed on the gate insulating film;

two charge holding portions formed on the sidewalls on opposite sides of the single gate electrode;

two diffusion layer regions corresponding to the two charge holding portions, respectively; and

a channel region placed beneath the single gate electrode,

wherein

the charge holding portions have a structure such that a film made of a first insulator having a function of holding charge is sandwiched between a second insulator and a third insulator, ~~and~~

the charge holding portions ~~are~~ extend to an area above a portion of the channel region and overlap a portion of the respective diffusion layer regions ~~constituted~~ such that the amount of current flowing between one of the diffusion layer regions and the other of the diffusion layer regions at the time of application of a voltage to the gate electrode is detected as being an indication of ~~changed due to~~ the quantity of charge held in the first insulator, and

the two diffusion layer regions are respectively offset relative to edges of the single gate electrode.

2. (Previously Presented) The semiconductor storage device according to Claim 1, wherein expressions $\chi_1 > \chi_2$ and $\chi_1 > \chi_3$ are satisfied, where

the χ_1 represents an energy gap between the vacuum level and the lowest level of a conduction band of the first insulator,

the χ_2 represents an energy gap between the vacuum level and the lowest level of a conduction band of the second insulator, and

the χ_3 represents an energy gap between the vacuum level and the lowest level of a conduction band of the third insulator.

3. (Previously Presented) The semiconductor storage device according to Claim 1, wherein expressions $\Phi_1 < \Phi_2$ and $\Phi_1 < \Phi_3$ are satisfied, where

the Φ_1 represents an energy gap between the vacuum level and the highest level of a valence band of the first insulator,

the Φ_2 represents an energy gap between the vacuum level and the highest level of a valence band of the second insulator, and

the Φ_3 represents an energy gap between the vacuum level and the highest level of a valence band of the third insulator.

4. (Previously Presented) The semiconductor storage device according to Claim 1, wherein all expressions of: $\chi_1 > \chi_2$, $\chi_1 > \chi_3$, $\Phi_1 < \Phi_2$ and $\Phi_1 < \Phi_3$ are satisfied, where

the χ_1 represents an energy gap between the vacuum level and the lowest level of the conduction band of the first insulator,

the χ_2 represents an energy gap between the vacuum level and the lowest level of the conduction band of the second insulator,

the χ_3 represents an energy gap between the vacuum level and the lowest level of the conduction band of the third insulator,

the Φ_1 represents an energy gap between the vacuum level and the highest level of the valence band of the first insulator,

the Φ_2 represents an energy gap between the vacuum level and the highest level of the valence band of the second insulator, and

the Φ_3 represents an energy gap between the vacuum level and the highest level of the valence band of the third insulator.

5. (Previously Presented) The semiconductor storage device according to Claim 1, wherein

the first insulator is of silicon nitride, and

the second and third insulators are of silicon oxide.

6. (Previously Presented) The semiconductor storage device according to Claim 5, wherein

the second insulator that is of silicon oxide is in a film form and separates the semiconductor substrate from the first insulator, and

the film formed of the second insulator on the semiconductor substrate has a thickness of no less than 1.5 nm and of no greater than 15 nm.

7. (Previously Presented) The semiconductor storage device according to Claim 5, wherein

the film formed of the first insulator, which is of silicon nitride, on the semiconductor substrate has a thickness of no less than 2 nm and of no greater than 15 nm.

8. (Previously Presented) The semiconductor storage device according to Claim 1, wherein

the second insulator is in a film form and separates the semiconductor substrate and the sidewalls of the gate electrode from the first insulator, and

the thickness of the film made of the second insulator in the vicinity of the sidewalls of the gate electrode is greater than the thickness of the film made of the second insulator on the semiconductor substrate.

9. (Previously Presented) The semiconductor storage device according to Claim 5, wherein

the thickness of the film made of the second insulator on the semiconductor substrate is less than the thickness of the gate insulating film and is not less than 0.8 nm.

10. (Previously Presented) The semiconductor storage device according to Claim 5, wherein

the thickness of the film made of the second insulator on the semiconductor substrate is greater than the thickness of the gate insulating film and is not greater than 20 nm.

11. (Canceled).

12. (Previously Presented) The semiconductor storage device according to Claim 1, wherein

the film made of the first insulator having a function of charge storage includes a portion having a surface approximately parallel to the surface of the gate insulating film.

13. (Previously Presented) The semiconductor storage device according to Claim 12, wherein

the film made of the first insulator having a function of charge storage includes a portion that extends approximately parallel to sides of the gate electrode.